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TRENDS IN SOYBEAN ACREAGE AND PRODUCTION, 1924-60

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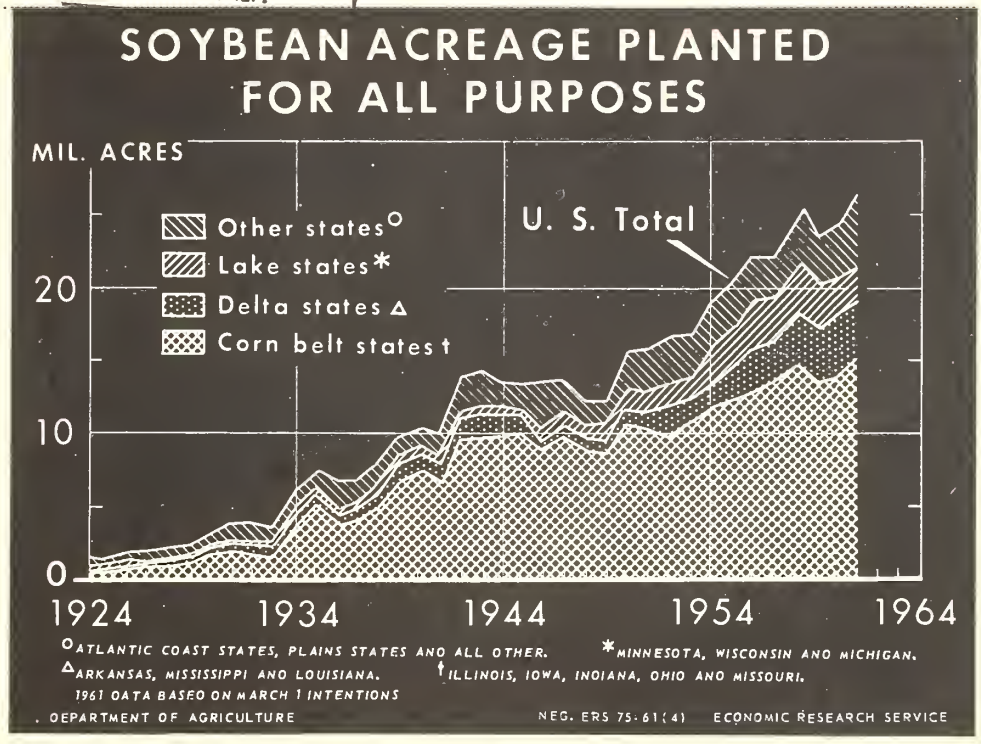
Soybean acreage has shown a sharp uptrend with the great expansion occurring during the last decade. A major factor has been the development of new varieties of soybeans better suited to both old and new production areas. Another factor, especially in the Corn Belt, has been the shifting of acreage formerly in oats and hay to soybeans. Acreage restrictions on corn, wheat, and cotton during the 1950's encouraged farmers to shift into soybeans, which have no acreage controls. The Corn Belt is the main production area for soybeans although since 1949 rapid acreage increases in the Delta, Lake, and other States have reduced its relative importance. (See page 24.)



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TRENDS IN SOYBEAN ACREAGE AND PRODUCTION, 1924-60

By
George W. Kromer

The rapid growth in soybean acreage and production in the United States, especially within the last 20 years, has been one of the outstanding developments in the recent history of American agriculture. Soybeans have moved up from obscurity in the prewar era to rank fifth currently among cash crops in this country. It is in first place among the oilseed crops of the Western Hemisphere. The value of the U. S. crop has increased a hundredfold in 30 years, up from a $10 million crop, in to the billion dollar class.

Soybean acreage planted for all purposes has risen sharply to a record 26.4 million indicated for 1961 from 1.5 million acres in the mid-1920's. Because of the uptrend in yields per acre, soybean production has shown an even greater growth, increasing to about 600 million from about 5 million bushels during the same 35-year span (table 13).

Many developments have contributed to the sharp uptrend in soybean acreage and production, but several stand out predominantly. One of them is the rapid expansion in market outlets for soybean oil and meal.

No attempt has been made to rank, in order of importance, the major factors responsible for this expansion. They all have contributed in some way to the rapid growth of soybean output and acreage in the United States.

New varieties of soybeans, better suited to both new and old production areas, have resulted in a marked increase in yields, and widened the production area within which competitive returns could be obtained. Relative returns from soybeans have improved mainly by the reduction in costs through mechanization, and the increase in acre-returns from higher yields.

Another major factor playing an important role has been the increase in tractor farming (mechanization). A rapid increase in the use of tractors and the downward trend in horse and mule numbers has reduced the requirements of grain feed for work stock. Farmers turned to soybeans when another crop was needed to boost their income above the dwindling market for oats. In some sections of the country, especially in the Corn Belt, acreage formerly in oats and hay has been shifted to soybeans.

Soybeans Grown Mainly for Forage Until 1941

Up to 1941, over half of the soybean acreage was for hay, grazing, or green manure (table 13). The soil-building program of the AAA encouraged the use of soybeans as a green manure crop. Furthermore, because soybeans could be planted late, they were used during the 1930's as an emergency forage crop to take the place of drought-stricken corn and small grain. The peak acreage harvested for hay, grazed, or plowed under was 7 million acres in 1940. Today this acreage is of minor importance, consisting of less than a million acres or a mere 4 percent of the 24 million acres devoted to soybeans in 1960.

Table 13.--Soybeans: Acreage, yield and Production, U. S., 1924-61

Year	Acres planted			Acres harvested		Grazed or plowed under	Yield per acre harvested		Production	
	Grown alone	Interplanted 1/	Equivalent solid 2/	For beans	For hay		For beans	For hay	Beans	Hay
	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	Bushels	Tons	1,000 bushels	1,000 tons
1924	1,567	417	1,782	448	1,147	187	11.0	1.13	4,947	1,299
1925	1,539	476	1,785	415	1,175	195	11.7	1.01	4,875	1,185
1926	1,871	502	2,127	466	1,431	230	11.2	1.18	5,239	1,687
1927	2,057	571	2,350	568	1,556	226	12.2	1.18	6,938	1,837
1928	2,154	556	2,439	579	1,609	251	13.6	1.23	7,880	1,974
1929	2,429	743	2,807	708	1,774	325	13.3	1.16	9,438	2,051
1930	3,072	786	3,473	1,074	2,062	337	13.0	.94	13,929	1,938
1931	3,835	909	4,304	1,141	2,772	391	15.1	1.26	17,260	3,479
1932	3,704	893	4,165	1,001	2,738	426	15.1	1.25	15,158	3,433
1933	3,537	813	3,957	1,044	2,506	407	12.9	1.16	13,509	2,917
1934	5,764	858	6,207	1,556	4,227	424	14.9	1.08	23,157	4,545
1935	6,966	1,028	7,503	2,915	4,044	544	16.8	1.34	48,901	5,422
1936	6,127	2,115	7,183	2,359	3,116	1,708	14.3	.96	33,721	3,002
1937	6,332	2,261	7,464	2,586	3,469	1,409	17.9	1.36	46,164	4,731
1938	7,318	2,541	8,587	3,035	3,724	1,828	20.4	1.43	61,906	5,335
1939	9,565	2,710	10,920	4,315	4,590	2,015	20.9	1.48	90,141	6,772
1940	10,487	2,589	11,782	4,807	4,819	2,156	16.2	1.34	78,045	6,450
1941	10,068	2,555	11,345	5,889	3,546	1,910	18.2	1.30	107,197	4,616
1942	13,696	2,426	14,912	9,894	2,621	2,397	19.0	1.36	187,524	3,555
1943	14,191	2,475	15,428	10,397	3,177	1,854	18.3	1.21	190,133	3,837
1944	13,118	1,861	14,050	10,245	2,577	1,228	18.8	1.18	192,121	3,040
1945	13,056	1,505	13,807	10,740	1,940	1,127	18.0	1.26	193,167	2,451
1946	11,706	1,458	12,434	9,932	1,499	1,003	20.5	1.28	203,395	1,912
1947	13,052	1,408	13,755	11,411	1,292	1,052	16.3	1.22	186,451	1,574
1948	11,987	1,259	12,617	10,682	1,111	824	21.3	1.30	227,217	1,446
1949	11,872	1,165	12,456	10,482	1,130	844	22.3	1.32	234,194	1,488
1950	15,048	1,184	15,640	13,807	963	870	21.7	1.31	299,249	1,260
1951	15,176	955	15,655	13,615	893	1,147	20.8	1.24	283,777	1,110
1952	15,958	831	16,374	14,435	1,085	854	20.7	1.10	298,839	1,191
1953	16,394	653	16,719	14,829	1,037	853	18.2	1 09	269,169	1,134
1954	18,541	663	18,872	17,047	876	1,103	20.0	1.04	341,075	913
1955	19,658	603	19,959	18,620	711	628	20.1	1.28	373,522	910
1956	21,671	578	21,960	20,642	559	759	21.8	1.28	449,446	717
1957	21,912	475	22,149	20,826	489	834	23.2	1.28	483,715	628
1958	25,037	465	25,270	23,900	532	838	24.3	1 43	579,713	760
1959	23,193	428	23,407	22,487	424	496	23.7	1.42	533,175	602
1960	24,275	375	24,463	23,516	521	426	23.8	1.44	558,778	751
1961 3/	(26,426)			(25,600)			(23.4)		(600,000)	

1/ Grown with other crops.
2/ Acreage grown alone, plus one half the interplanted acres
3/ March 1 planting intentions.

Up to 1935 soybeans harvested for beans were used mainly for seed or for feed by livestock farmers. The situation in the early years resulted not only from the lack of processing demand but also from the fact that acreage grown for forage constituted a large part of the total soybean acreage. Beginning in 1935 soybeans have been grown predominantly for the market (table 14). In 1960, soybean crushers are expected to utilize about 72 percent of the crop and bean exporters about 25 percent. The remainder is used mainly as planting seed for the next crop although small quantities are fed to livestock. The proportion of the soybean crop consumed by U. S. processors has declined in recent years because of the sharp uptrend in exports of beans.

The Corn Belt historically has been the main production area for soybeans and is likely to continue so. However, rapid acreage increases during the last decade in the Lake States and Delta States have reduced the relative importance of the Corn Belt States.1/ The successful invasion of soybeans in the mature farming economy of the Corn Belt is amazing in that it represented the large-scale introduction of a new cash crop into the well-established cropping systems of that area of the country.

World War II Demand Touched Off Soybean Acreage Expansion in 1940's

Before World War II the United States was a net importer of oilseeds, fats, and oils for both food and nonfood uses as well as livestock feed. The hostilities cut off many of our Far Eastern supplies while rising U. S. incomes increased the demand for meat and other livestock products. This resulted in a greater demand for protein supplies to feed the expanding livestock numbers. Feed demand was boosted further by the development of the mixed feed industry. The demand for all fats and oils was strengthened because of the need to replace imported fats and oils, the greater use of shortening, and the increased use of margarine as a replacement for butter. These heavy wartime demands, together with higher Government price supports, brought about a rapid rise in soybean acreage for beans and production during this period.

1/ For the sake of simplicity and convenience in analyzing trends, the totals or averages for selected groups of States in each region are used. These States represent the great bulk of soybean production in the respective regions. The groups of States are as follows: North Central, or Corn Belt--Illinois, Iowa, Indiana, Ohio, and Missouri; Lake States--Minnesota, Wisconsin, and Michigan; Plains States--Kansas, Nebraska, South Dakota, and North Dakota; Delta States--Arkansas, Mississippi, and Louisiana; Atlantic States--North Carolina, South Carolina, Virginia, Maryland, and Delaware.

Table 14.--Soybeans: Supply, disposition, and price, 1924-60

Year beginning October	Supply					Disposition						Price per bushel		Production of			
		Stocks, Oct. 1 1/						Used for seed						Oil		Meal	
	Production	On farms	Off farms	Total	Total supply	Exports	Crushings 2/	Total	Per acre planted	Feed 3/	Residual 4/	Season average received by farmers 5/	Support	Total	Per bushel crushed 6/	Total	Per bushel crushed 6/
	Mil. bu.	Mil. bu.	Mil. bu.	Mil. bu.	Mil. bu.	Mil. bu.	Mil. bu.	Mil. bu.	Lb.	Mil. bu.	Mil. bu.	Dol.	Dol.	Mil. lb.	Lb.	1,000 tons	Lb.
1924	4.9	---	7/	7/	5.0	---	0.3	1.9	---	1.2	1.6	2.50	---	2	7.4	8	49.5
1925	4.9	---	7/	7/	4.9	---	.4	2.3	64	1.2	1.0	2.34	---	3	7.5	9	49.0
1926	5.2	---	7/	7/	5.3	---	.3	2.5	65	1.3	1.2	2.00	---	3	7.9	8	49.6
1927	6.9	---	7/	7	7.0	---	.6	2.7	64	1.6	2.1	1.80	---	4	7.8	14	49.0
1928	7.9	---	7/	7/	8.0	---	.9	3.0	66	1.5	2.5	1.86	---	7	8.3	22	48.8
1929	9.4	---	0.1	0.1	9.6	---	1.7	3.8	64	1.7	2.3	1.86	---	13	8.1	41	48.9
1930	13.9	---	.1	.1	14.1	---	4.1	4.7	65	2.8	2.0	1.34	---	35	8.5	99	48.5
1931	17.3	---	.5	.5	17.8	8/2.2	4.7	4.6	66	2.9	3.3	.48	---	40	8.5	115	48.6
1932	15.2	---	.1	.1	15.3	8/2.5	3.5	4.5	67	2.3	2.5	.53	---	29	8.4	84	48.6
1933	13.5	---	7/	7/	13.6	8/ 7/	3.1	7.6	68	2.1	.8	.92	---	26	8.6	74	48.4
1934	23.2	---	7/	7/	23.2	8/ 7/	9.1	10.1	74	2.0	1.7	.96	---	78	8.6	220	48.4
1935	48.9	---	.3	.3	49.2	8/3.5	25.2	8.9	80	3.9	7.3	.71	---	209	8.3	613	48.7
1936	33.7	---	.4	.4	34.1	7/	20.6	9.5	74	2.7	1.0	1.25	---	184	8.9	496	48.1
1937	46.2	---	.3	.3	46.5	1.4	30.3	10.9	77	3.3	.3	.84	---	279	9.2	724	47.8
1938	61.9	---	.3	.3	62.2	4.4	44.6	14.7	76	4.6	-7.1	.66	---	416	9.3	1,064	47.7
1939	90.1	---	1.0	1.0	91.1	11.0	56.7	16.0	81	5.4	1.6	.80	---	533	9.4	1,349	47.6
1940	78.0	---	.4	.4	78.4	.3	64.1	15.1	81	5.0	-6.8	.89	---	564	8.8	1,543	48.2
1941	107.2	---	.7	.7	107.9	.5	77.1	20.4	80	3.9	---	1.55	1.05	707	9.2	1,845	47.8
1942	187.5	3.1	2.9	6.0	193.5	.9	133.5	21.0	82	6.0	19.6	9/1.60	1.60	1,206	9.0	3,200	48.0
1943	190.1	4.6	8.0	12.5	202.7	1.0	142.3	19.8	82	5.5	19.9	9/1.81	1.80	1,219	8.6	3,446	48.4
1944	192.1	4.6	9.5	14.2	206.3	5.1	153.4	18.9	84	3.6	17.6	9/2.05	2.04	1,347	8.8	3,699	48.2
1945	193.2	2.9	4.8	7.7	200.9	2.9	159.5	16.7	82	3.7	13.7	2.08	2.04	1,415	8.9	3,837	48.1
1946	203.4	2.1	2.2	4.4	207.8	10/3.8	170.2	17.5	81	2.6	8.3	2.57	2.04	1,531	9.0	4,086	48.0
1947	186.5	2.3	3.1	5.4	191.8	10/2.9	161.4	16.1	76	2.5	6.3	3.33	2.04	1,534	9.5	3,833	47.5
1948	227.2	1.9	.7	2.6	229.8	23.0	183.7	15.9	76	2.8	1.2	9/2.27	2.18	1,807	9.8	4,330	47.1
1949	234.2	2.2	1.0	3.2	237.4	13.1	195.3	18.9	77	2.5	4.7	9/2.16	2.11	1,937	9.9	4,586	47.0
1950	299.2	1.2	1.7	2.9	302.1	27.8	252.0	19.0	72	2.3	-3.2	9/2.47	2.06	2,454	9.7	5,897	46.8
1951	283.8	2.7	1.5	4.2	287.9	17.0	244.4	19.8	73	2.0	1.1	9/2.73	2.45	2,444	10.0	5,704	46.7
1952	298.8	2.0	1.6	3.6	302.4	31.9	234.4	20.7	72	1.8	3.5	9/2.72	2.56	2,536	10.8	5,551	47.4
1953	269.2	5.8	4.4	10.1	279.3	39.7	213.2	22.9	74	1.4	.8	9/2.72	2.56	2,350	11.0	5,051	47.4
1954	341.1	.5	.8	1.3	342.4	60.6	249.0	23.4	73	1.6	-2.1	9/2.46	2.22	2,711	10.9	5,705	45.8
1955	373.5	3.9	6.0	9.9	383.5	67.5	283.1	26.1	70	1.7	1.4	9/2.22	2.04	3,143	11.1	6,546	46.2
1956	449.4	2.0	1.7	3.7	453.2	85.4	315.9	26.2	71	1.7	14.1	9/2.18	2.15	3,431	10.9	7,510	47.5
1957	483.7	3.6	6.3	9.9	493.6	85.5	353.8	29.4	71	1.5	2.3	9/2.07	2.09	3,800	10.7	8,284	46.8
1958	579.7	2.2	18.9	21.1	600.8	110.1	401.2	27.2	70	1.9	-1.7	9/2.00	2.09	4,251	10.6	9,490	47.3
1959 11/	533.2	17.1	45.0	62.1	595.3	141.1	393.2	29.1	71	1.5	7.1	9/1.96	1.85	4,329	11.0	9,127	46.5
1960 11/	558.8	3.4	19.8	23.2	582.0	12/141	12/405	31.4		1.5		9/2.21	1.85				
1961													2.30				

1/ From 1924 through 1941, stock data are at crushing mills only as reported by the Bureau of the Census. Beginning with 1942, data include stocks on farms, at processing plants, commercial stocks at terminals, CCC stocks in transit to ports, and stocks in interior mills, elevators, and warehouses.

2/ Crushings as reported by Bureau of the Census. Some new-crop soybeans are crushed prior to October 1. These affect the size of the residual item.

3/ Fed to livestock on farms where grown.

4/ Includes cleaning and other losses, year-to-year changes in volume of soybeans crushed prior to October 1, and other statistical discrepancies.

5/ Season average price in each State for the marketing year weighted by quantities sold.

6/ Computed from unrounded data.

7/ Less than 50,000 bushels.

8/ Based on inspections for export by Federal licensed inspectors, first reported in October 1931. Not separately classified by Bureau of the Census prior to January 1, 1937.

9/ Includes an allowance for unredeemed loans.

10/ Includes exports for civilian feeding abroad by the military forces.

11/ Preliminary.

12/ Partly estimated.

Conditions were ripe for major expansion in soybean acreage by 1940. Variety adaptation, mechanization, marketing, processing technology, and slowly accumulating experience on the part of farmers had all reached a critical state. The advent of World War II with its heavy requirements for all fats and oils provided the necessary stimulus for the expansion of soybean acreage.

Soybean acres planted for all purposes increased from 10.1 million acres in 1941 to a peak of 14.2 million in 1943, averaging 12.8 million for the 1941-45 war years (table 13). In the immediate postwar period acreage dropped slightly, averaging about 12.2 million during 1946-49. Because of increasing yields per acre, however, output of soybeans on the smaller acreage was 22 percent greater than during World War II.

Great Expansion of Soybean Acreage During 1950's

Although soybean acreage and production trended upward during 1924-1950, the period beginning with 1950 brought the greatest expansion in soybean acreage. Development of new varieties of soybeans in the 1950's enabled this crop to compete more effectively with others in the cropping system. Thus it increased in importance in the farm economy, both in the northern areas of the Midwest, and in the southern States.

Soybean acreage planted for all purposes jumped from about 12 million acres in 1949 to 15 million in 1950. Acreage then showed somewhat smaller increases each year thereafter reaching 25 million in 1958. Soybean plantings then dropped to the 23 to 24 million acre level in 1959-60. But farmers this year indicated they intend to plant a record 26.4 million acres to soybeans in 1961.

In 1950, and again in every year from 1954 to the present, acreage allotments have been in effect for cotton and wheat, and on corn from 1954 through 1958. Most cotton and wheat growers complied with their acreage allotments and marketing quotas during these years. But in the commercial corn-growing areas, generally less than half of the farmers complied with their corn allotments. Corn allotments were taken off in 1959.

Other feed grains (grain sorghums, oats, barley, and rye) and other nonbasic crops (such as soybeans) have not been controlled by acreage allotments or marketing quotas. Furthermore, there have been no cross compliance requirements to restrict the diversion of much of the released land from cotton and wheat to the production of feed grains other than corn. These programs greatly benefitted soybean acreage. Acreage restrictions imposed on the 1950 crops resulted in a reduction of corn and wheat acreage in the Corn Belt and an increase in soybean and hay acreage (table 15). In the South, cotton and wheat acreage dropped sharply whereas soybean and corn acreage increased slightly.

Table 15.--Soybeans and other selected crops: Harvested acreages and their changes, Corn Belt, South, and U. S., selected years, 1949-1960

Crop and area	1949	Change in acreage from 1949 through				Percentage change 1949-60
		1950 1/	1953 2/	1957 3/	1960 4/	
	Million acres	Million acres	Million acres	Million acres	Million acres	Percent
Corn Belt 5/						
Corn	33.2	-3.4	-0.4	-3.6	+2.8	+8
Hay	13.0	+1.7	+.8	-.1	-1.0	-8
Oats	14.1	.0	-1.9	-3.1	-5.9	-42
Soybeans	7.8	+2.0	+2.4	+5.2	+6.0	+77
Wheat	8.1	-1.4	-.2	-1.8	-2.2	-27
Total	76.2	-1.7	+.7	-3.4	-.3	0
South 6/						
Corn	16.9	+1.2	-3.0	-4.8	-5.6	-33
Cotton	23.3	-8.2	-3.5	-12.0	-10.8	-46
Hay	10.4	-.6	-.4	-1.3	-1.7	-16
Oats	3.3	+.1	+.7	+1.6	-.4	-12
Soybeans	1.0	+.6	+.8	+2.3	+4.2	+420
Wheat	14.0	-6.1	-4.2	-7.0	-4.6	-33
Total	68.9	-13.0	-9.6	-21.2	-18.9	-27
United States						
Corn	85.6	-3.8	-5.1	-13.0	-3.5	-4
Cotton	27.4	-9.6	-3.1	-13.9	-12.1	-44
Hay, all	72.8	+2.3	+2.2	+.6	-3.5	-5
Oats	37.8	+1.5	-.3	-3.1	-10.7	-28
Soybeans	10.5	+3.3	+4.3	+10.3	+13.0	+124
Wheat	75.9	-14.3	-8.1	-32.1	-23.3	-31
Total	310.0	-20.6	-10.1	-51.2	-40.1	-13

1/ Acreage restrictions on corn, cotton, and wheat.
2/ No acreage controls.
3/ Acreage restrictions on corn, cotton, and wheat; Soil Bank Program in effect.
4/ Acreage controls on cotton and wheat but not corn. Soil Bank Program in effect.
5/ Illinois, Iowa, Indiana, Ohio, and Missouri.
6/ Southeastern States plus Mississippi, Tennessee, Louisiana, Arkansas, Texas, and Oklahoma.

Removal of planting restrictions during 1951-53 generally brought a return to former acreage patterns in the Corn Belt except for soybeans, which continued to increase, and for oats, which declined.

The reimposition of acreage controls in 1954 brought another sharp decline in wheat and cotton and a small drop in corn acreage. Again soybeans gained. By the 1956 crop year practically all crops in the Corn Belt and the South, excepting soybeans, were losing acreage. This decline mainly reflected the use of the Soil Bank Program which encouraged farmers to take millions of acres out of cultivation.

Corn, cotton, and wheat acreage increased some during 1958-60, whereas soybean acreage, after reaching a record in 1958, declined slightly in 1959 and 1960.

For the country as a whole, the soybean crop was the only one among the 6 shown in table 15 which registered a gain in acreage during 1949-60--soybean acreage increased 124 percent during the period. Acreage of all other crops shown in the table decreased--in this same period cotton 44 percent, wheat 31 percent, oats 28 percent, all hay 5 percent, and corn 4 percent.

Rapid Expansion of Soybean Acreage in Other Areas Reduced Relative Importance of Corn Belt

The earlier trend toward concentration of soybean acreage in the North Central area continued through World War II. Since the end of the war the Corn Belt States have continued to be the major production area for soybeans, but rapid increases in acreage in other sections of the country have reduced the relative importance of the Corn Belt.

During 1925-29 about 50 percent of the total acreage planted to soybeans in the U. S. was in the Corn Belt States (table 16). After 1929 this concentration became more pronounced. Soybean acreage in the Corn Belt States reached a record 75 percent during 1944 and 1945. A series of recurring droughts during the 1930's partly accounts for increased plantings of soybean after previous plantings of corn or other grains had been ruined by dry weather. Also in the 1930's the Government programs played a role in expanding soybean acreage by restricting corn acreage.

After World War II the proportion of soybean acreage situated in the Corn Belt declined rather steadily from 75 percent in 1945 to 58 percent in the last 2 years, even though there was a continuing upward trend in total acreage in these States. The Delta and the Lake States were the areas outside the Corn Belt that showed significant increases in soybean acreage and production in the postwar years, especially in the 1950's. (See cover chart.)

Table 16.--Soybeans: Acreage planted for all purposes, by selected groups of States, averages 1925-29, 1930-34, 1935-39 and annual 1940-60

Period or year	United States		Corn Belt States 1/		Lake States 2/		Plains States 3/		Delta States 4/		Atlantic States 5/		All other States 6/	
	1,000 acres	Pct.	1,000 acres	Pct.	1,000 acres	Pct.	1,000 acres	Pct.	1,000 acres	Pct.	1,000 acres	Pct.	1,000 acres	Pct.
Average														
1925-29	2,010	100	1,007	50	27	1	13	1	156	8	337	17	471	23
1930-34	3,982	100	2,561	64	142	4	48	1	255	6	414	11	563	14
1935-39	7,262	100	5,103	70	316	4	45	1	520	7	502	7	775	11
1940	10,487	100	7,494	71	653	6	102	1	647	6	633	6	958	10
1941	10,068	100	6,813	68	587	6	121	1	814	8	675	7	1,058	10
1942	13,696	100	9,586	70	842	6	369	3	925	7	838	6	1,136	8
1943	14,191	100	9,894	70	585	4	435	3	1,023	7	973	7	1,281	9
1944	13,118	100	9,863	75	595	5	243	2	675	5	719	5	1,023	8
1945	13,056	100	9,783	75	761	6	300	2	676	5	681	5	855	7
1946	11,706	100	8,408	72	885	8	279	2	727	6	655	6	752	6
1947	13,052	100	9,302	71	1,187	9	348	3	749	6	728	5	738	6
1948	11,987	100	8,441	70	1,044	9	266	2	739	6	748	6	749	7
1949	11,872	100	8,294	70	931	8	346	3	729	6	767	6	805	7
1950	15,048	100	10,194	68	1,351	9	575	4	1,214	8	872	6	842	5
1951	15,176	100	9,834	65	1,326	9	649	4	1,372	9	938	6	1,057	7
1952	15,958	100	9,938	62	1,358	9	913	5	1,680	11	947	6	1,122	7
1953	16,394	100	10,656	65	1,583	10	819	5	1,435	9	976	6	925	5
1954	18,541	100	11,528	62	2,221	12	840	5	1,845	10	1,117	6	990	5
1955	19,658	100	11,934	61	2,521	13	909	4	2,131	11	1,175	6	988	5
1956	21,671	100	12,642	58	3,000	14	1,000	4	2,575	12	1,450	7	1,004	5
1957	21,912	100	13,305	61	3,055	14	781	4	2,309	10	1,485	7	977	4
1958	25,037	100	14,389	57	3,541	14	1,187	5	3,186	13	1,584	6	1,150	5
1959	23,193	100	13,367	58	2,556	11	956	4	3,530	15	1,559	7	1,225	5
1960	24,275	100	13,973	58	2,438	10	1,028	4	3,602	15	1,869	7	1,365	6
1961 7/	26,426	100	15,215	58	2,655	10	1,200	5	3,816	14	2,067	8	1,473	5

1/ Illinois, Iowa, Indiana, Ohio, and Missouri.

2/ Minnesota, Wisconsin, and Michigan.

3/ Kansas, Nebraska, South Dakota, and North Dakota.

4/ Arkansas, Mississippi, and Louisiana.

5/ North Carolina, South Carolina, Virginia, Maryland, and Delaware.

6/ Includes New York, New Jersey, Pennsylvania, West Virginia, Georgia, Florida, Kentucky, Tennessee, Alabama, Oklahoma, and Texas.

7/ March 1, 1961 planting intentions.

Table 17.--Soybeans: Acreage harvested for beans, by selected groups of States, averages 1925-29, 1930-34, and 1935-39, and annual 1940-60

Period or year	United States	Corn Belt	Lake States	Plains States	Delta States	Atlantic States	All other States
	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres
1925-29	547	337	4	4	38	125	39
1930-34	1,163	877	9	10	45	168	54
1935-39	3,042	2,604	43	7	97	217	72
1940	4,807	4,097	155	31	117	294	113
1941	5,889	4,938	217	69	203	327	135
1942	9,894	7,898	484	269	480	482	281
1943	10,397	8,482	410	345	428	441	291
1944	10,245	8,697	412	217	332	349	238
1945	10,740	8,933	625	270	315	385	212
1946	9,932	7,863	748	246	417	387	271
1947	11,411	8,798	1,065	318	428	463	339
1948	10,682	8,080	983	237	480	525	377
1949	10,482	7,834	851	328	499	550	420
1950	13,807	9,870	1,260	558	979	654	486
1951	13,615	9,434	1,245	547	1,080	713	596
1952	14,435	9,589	1,294	842	1,391	714	605
1953	14,829	10,241	1,517	699	1,071	748	553
1954	17,047	11,160	2,174	698	1,550	866	599
1955	18.620	11,721	2,469	846	1,931	977	676
1956	20,642	12,413	2,912	908	2,376	1,314	719
1957	20,826	13,055	2,886	726	2,117	1,341	701
1958	23,900	14,024	3,467	1,151	2,956	1,439	863
1959	22,487	13,219	2,513	929	3,369	1,460	997
1960	23,516	13,818	2,402	1,011	3,437	1,749	1,099

Table 18.--Soybeans harvested for beans: Acreage and production in five Corn Belt States and in all other States, as percentages of the totals for the U. S., 1924-60

Year	Acreage		Production		Year	Acreage		Production	
	Corn Belt States	All other States	Corn Belt States	All other States		Corn Belt States	All other States	Corn Belt States	All other States
	Percent	Percent	Percent	Percent		Percent	Percent	Percent	Percent
1924	58	42	55	45	1942	80	20	86	14
1925	52	48	52	48	1943	82	18	89	11
1926	56	44	58	42	1944	85	15	89	11
1927	63	37	63	37	1945	83	17	87	13
1928	65	35	70	30	1946	79	21	84	16
1929	67	33	73	27	1947	77	23	80	20
1930	74	26	83	17	1948	76	24	80	20
1931	72	28	79	21	1949	75	25	80	20
1932	72	28	83	17	1950	71	29	76	24
1933	74	26	80	20	1951	69	31	75	25
1934	82	18	88	12	1952	66	34	74	26
1935	89	11	93	7	1953	69	31	74	26
1936	82	18	88	12	1954	65	35	72	28
1937	83	17	89	11	1955	63	37	67	33
1938	84	16	91	9	1956	60	40	67	33
1939	87	13	93	7	1957	63	37	67	33
1940	85	15	88	12	1958	59	41	65	35
1941	84	16	89	11	1959	59	41	63	37
					1960	59	41	62	38

The greatest expansion in soybean acreage outside the Corn Belt has occurred in the Delta States. Plantings during 1946-49 were relatively stable at about 735,000 acres, comprising only 6 percent of the total U. S. acreage. The acreage then jumped to 1.2 million in 1950 and generally trended upward thereafter to 3.8 million or 15 percent of the total soybean acreage indicated for 1961.

Soybean plantings in the Lake States during 1946-49 were generally stable at around a million acres, accounting for 8 to 9 percent of the total U. S. acreage. Acreage increased to 1.4 million in 1950 and trended upward to a peak of 3.5 million in 1958, 14 percent of the total. Acreage since 1958 has varied between 2.4 and 2.7 million.

Acreage in the Atlantic States and Plains States has also shown a slow steady longrun uptrend but on a scale somewhat smaller than in other areas.

New varieties of soybeans better adapted to climatic conditions of new producing areas has been an important factor in the expansion of soybean growing in the Delta and Lake States, as well as in other sections of the country.

The great expansion of soybeans, especially in the Corn Belt, over the years is also associated with the increase in tractor farming. With the rapid increase in use of tractors and decline in horses and mules came a drop in demand for oats, corn, hay, and pasture. Soybeans were available when a new crop was needed to boost the farmers' income above the dwindling market for oats. A tractor-equipped farm can handle more acres of row crops but the overhead costs are greater. Farmers needed to turn to a high income-producing cash crop, such as soybeans, to meet higher overhead costs. Those who were equipped to handle small grains and row crops were able to shift readily to soybeans without additional investment in farm equipment.

Soybean Yields Per Acre Show Longrun Uptrend

The yield of soybeans per acre harvested for beans in the U. S. has shown a steady upward trend from an average of 12.6 bushels in 1925-29 to 18.5 bushels in 1935-39 (table 19). This prewar uptrend resulted both from an increasing proportion of total acreage planted in good seed-producing varieties and from improvement of these varieties. Important too was replacement of binders and threshers by combine harvesters as these machines recovered a larger percentage of the crop.

The upward trend in yields per acre was temporarily halted during World War II, as the rapid expansion of acreage brought soybeans into new areas for which the available varieties were not so well suited, and also because soybeans were grown by many farmers who lacked experience with the crop.

After the end of World War II the uptrend in soybean yields was resumed--yields increased from 16.3 bushels per acre in 1947 to a record 24.3 bushels in 1958. The principal influences in the upward trend in soybean yield appear to have been improvement of varieties and mechanization of harvesting. Other

Table 19.--Soybeans: Yields per acre harvested for beans, by selected groups of states, averages 1925-29, 1930-34, and 1935-39, and annual 1940-60

Period or year	United States	Corn Belt	Lake States	Plains States	Delta States	Atlantic States	All other States
	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels
1925-29	12.6	13.3	11.5	9.8	9.5	13.1	8.1
1930-34	14.3	15.6	11.3	7.4	9.4	10.9	7.6
1935-39	18.5	19.6	15.6	8.1	10.6	12.1	9.0
1940	16.2	16.8	16.1	12.3	11.5	12.5	11.2
1941	18.2	19.3	15.3	11.4	13.2	10.6	11.6
1942	19.0	20.3	13.3	12.2	14.2	14.0	13.1
1943	18.3	19.9	14.4	10.2	10.4	9.3	11.7
1944	18.8	19.6	15.6	14.1	14.5	11.3	13.2
1945	18.0	18.8	15.0	10.7	15.1	13.5	14.6
1946	20.5	21.7	17.0	12.2	17.4	14.1	17.1
1947	16.3	17.0	15.1	9.6	11.6	14.3	16.0
1948	21.3	22.6	17.9	16.1	18.9	14.0	18.9
1949	22.3	24.0	17.8	14.6	19.1	15.8	18.4
1950	21.7	23.1	15.9	17.3	22.6	16.2	18.8
1951	20.8	22.6	17.7	15.2	17.2	16.3	17.0
1952	20.7	23.0	18.9	13.4	15.1	16.3	16.8
1953	18.2	19.4	20.2	10.4	11.5	15.4	15.2
1954	20.0	22.1	21.3	14.1	11.3	14.9	13.5
1955	20.1	21.4	19.4	11.1	18.5	17.5	18.1
1956	21.8	24.3	19.9	10.6	17.3	19.5	18.6
1957	23.2	24.9	21.4	17.5	22.1	18.2	19.6
1958	24.3	26.8	17.8	19.2	24.0	20.8	22.6
1959	23.7	25.3	19.4	18.0	24.1	20.4	22.5
1960	23.8	25.2	19.9	20.8	22.7	22.2	22.5

Table 20.--Soybeans: Production from harvested acres for beans, by selected groups of States, averages 1925-29, 1930-34, and 1935-39, and annual 1940-60

Period or year	United States	Corn Belt	Lake States	Plains States	Delta States	Atlantic States	All other States
	1,000 bu.	1,000 bu.	1,000 bu.	1,000 bu.	1,000 bu.	1,000 bu.	1,000 bu.
1925-29	6,874	4,474	46	39	360	1,640	315
1930-34	16,603	13,672	102	74	422	1,833	409
1935-39	56,167	51,141	669	57	1,031	2,620	650
1940	78,045	68,884	2,503	380	1,348	3,668	1,262
1941	107,197	95,406	3,315	784	2,670	3,452	1,570
1942	187,524	160,563	6,443	3,286	6,829	6,732	3,671
1943	190,133	168,743	5,908	3,522	4,452	4,096	3,412
1944	192,121	170,762	6,412	3,067	4,800	3,934	3,146
1945	193,167	167,868	9,370	2,896	4,745	5,193	3,095
1946	203,395	170,344	12,700	3,003	7,236	5,468	4,644
1947	186,451	149,931	16,040	3,054	5,392	6,606	5,428
1948	227,217	182,298	17,552	3,818	9,054	7,372	7,123
1949	234,194	188,215	15,186	4,803	9,549	8,708	7,733
1950	299,249	227,698	20,027	9,651	22,162	10,589	9,122
1951	283,777	213,133	22,021	8,324	18,529	11,643	10,127
1952	298,839	220,221	24,445	11,285	21,068	11,628	10,192
1953	269,169	199,041	30,589	7,305	12,331	11,510	8,393
1954	341,075	246,570	46,237	9,871	17,448	12,865	8,084
1955	373,522	251,080	47,945	9,398	35,736	17,123	12,240
1956	449,446	301,548	58,058	9,643	41,169	25,678	13,350
1957	483,715	324,540	61,713	12,676	46,684	24,359	13,743
1958	579,713	375,467	61,770	22,130	70,897	29,973	19,476
1959	533,175	334,326	48,825	16,738	81,112	29,737	22,437
1960	558,778	348,359	47,872	21,052	78,027	38,762	24,706

factors were experience with the crop, better management of soils, more timely operations and other improved practices, including other phases of mechanization than harvesting alone.

Variety improvement and mechanization have shown different influences on yields. Improved varieties of soybeans have resulted in marked increases in yield but its major impact has been through making available adapted varieties which enabled the crop to expand to new areas. Variety improvement widened the production areas within which competitive yields could be obtained. Mechanization of harvesting operations, on the other hand, has increased realized yields everywhere through the reduction of losses in harvesting. The influence of mechanization on timeliness of work performance and on better weed control has also had a general upward effect on yields. Other factors include such practices as the increased use of inoculation of planting seed, row planting, and improved cropping systems.

As shown in table 19, yields of soybeans per acre are considerably higher in the Corn Belt than in other areas of the U. S. While yields per acre have about doubled in most areas, the sharpest increase has occurred in the Delta States, where they rose from 9.5 bushels in 1925-29 to a record 24.0 bushels in 1958.

Demand For Soybeans Keeps Pace With Increased Output

The demand for soybeans and its products (soybean oil and meal) has kept pace with the sharp increases in production--there has never been a serious surplus of soybeans in the U. S. Soybeans are grown for a direct source of oil and protein meal. The supply of competitive cottonseed oil and lard is inelastic because these commodities are byproducts of the cotton and hog industry and, therefore, output cannot be adjusted in response to changing demand and price conditions.

The major factor in the sharp uptrend in the domestic fats and oils supply has been the increased availability of soybean oil, which considered separately has accounted for over 90 percent of the total increase in food fat supplies since the 1930's. During the past generation the supply of cottonseed oil has changed little, whereas there has been a marked increase in lard supplies and a drop in butter.

As was the case with soybean oil the largest single factor in the substantial growth in the domestic supply of high protein feeds has been the increased availability of soybean meal. The demand for high protein feeds has expanded along with the sharp growth in the mixed feed industry, reflecting the increase in poultry and livestock numbers as well as a heavier feeding rate of these feeds per animal.

Exports of soybeans and soybean oil are a relatively new development in the soybean industry, having really taken hold about a decade ago, and continues to grow rapidly as an outlet for these commodities. Over 40 percent of the 1959 soybean crop was shipped abroad--141 million bushels as beans and the equivalent of another 86 million bushels as soybean oil. The rise in soybean exports has been to dollar importing areas such as Western Europe, Japan, and Canada whereas increased U. S. soybean oil exports mainly reflect shipments to underdeveloped countries under the P. L. 480 program. Italy and Spain, which were formerly large takers of oil under Government programs, have now developed into dollar importing areas.

Demand for soybeans, soybean oil, and soybean meal will continue to increase both domestically and abroad. Long run prospects indicate that U. S. soybean production will continue upward to meet the expanding market outlets. Within the next 10 to 15 years soybean output probably will reach the billion-bushel mark.

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Growth Through Agricultural Progress

: The issue dates for the Fats and Oils Situation :
: are January, March, May, August, and November :
: (Outlook issue). The August issue is scheduled :
: for release on August 22. :